

**WHAT IS CLAIMED:**

1. An isolated multimerized antibody that can bind to a CD83 polypeptide comprising amino acid sequence SEQ ID NO:97.
- 5 2. The isolated antibody of claim 1, wherein proliferation of a lymphocyte is decreased when the lymphocyte is contacted with the multimerized antibody.
- 10 3. The isolated antibody claim 1, wherein the multimerized antibody comprises amino acid sequence SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71 SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90; SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO: 94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID NO:98 or SEQ ID NO:99.
- 25 4. An isolated nucleic acid encoding an antibody that can be multimerized and that can bind to a CD83 polypeptide, wherein the antibody comprises any one of amino acid sequences SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID

NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:70, SEQ ID NO:71 SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90; SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO: 94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID NO:98 or SEQ ID NO:99.

10 5. A nucleic acid encoding an anti-cd83 antibody wherein the nucleic acid comprises any one of amino acid sequences SEQ ID NO:12, SEQ ID NO:14, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:74, SEQ ID NO:75, SEQ ID NO:76, SEQ ID NO:77, SEQ ID NO:82, SEQ ID NO:83, SEQ ID NO:84, SEQ ID NO:85 or SEQ ID NO:90.

15 6. A method of modulating lymphocyte proliferation in a mammal comprising administering to the mammal a multimerized antibody that is directed against an extracellular domain of CD83 polypeptide, wherein the multimerized antibody can modulate lymphocyte proliferation.

20 7. The method of claim 6, wherein the multimerized antibody can bind to an extracellular domain of CD83 polypeptide that comprises amino acid sequence SEQ ID NO:97.

25 8. The method of claims 6, wherein the multimerized antibody comprises amino acid sequence SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID

NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:67, SEQ ID 5 NO:69, SEQ ID NO:70, SEQ ID NO:71 SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90; SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO: 94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID NO:98 or SEQ ID NO:99.

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9. The method of claim 6, wherein the multimerized antibody is non-covalently multimerized.

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10. The method claim 6, wherein the multimerized antibody is covalently multimerized.

11. The method of claim 6, wherein lymphocyte proliferation is modulated at a localized site in the mammal.

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12. The method of claim 11, wherein the localized site in the mammal is a joint, a site in a lung, a site in a muscle, a site in a stomach, a site in an intestine, a site in a thyroid, a site on the skin, a site in a bladder, a site in a vagina, a site in the brain, or a site in the prostate.

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13. A method for decreasing proliferation of CD4<sup>+</sup> T-cells in a mammal comprising administering to the mammal a multimerized antibody that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

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14. A method of modulating cytokine production by a lymphocyte by contacting the lymphocyte with a multimerized antibody that can modulate cytokine production

and wherein the multimerized antibody can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.

15. 15. A method of modulating granulocyte macrophage colony stimulating factor production in a mammal by administering to the mammal a multimerized antibody that can modulate the activity or expression of CD83 polypeptides, wherein the multimerized antibody can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.
- 10 16. A method of modulating granulocyte macrophage colony stimulating factor production by a lymphocyte by contacting the lymphocyte with a multimerized antibody that can modulate the activity or expression of a CD83 polypeptide, wherein the multimerized antibody can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.
- 15 17. A method of modulating tumor necrosis factor production in a mammal by administering to the mammal a multimerized antibody that can modulate the activity or expression of CD83 polypeptides, and wherein the multimerized antibody can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.
- 20 18. A method of inhibiting proliferation of a human peripheral blood mononuclear cell in a mammal by administering to the mammal a multimerized antibody that can modulate the activity or expression of CD83 polypeptides, and wherein the multimerized antibody can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.
- 25 19. A method for placing an immune cell into anergy, comprising contacting the immune cell that expresses CD83 gene product with a multimerized antibody that can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.

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20. A method for decreasing the activity of a CD83 gene product in a mammal, comprising administering to the mammal a multimerized antibody that can bind to a polypeptide that comprises amino acid sequence SEQ ID NO:97.

5 21. A method for modulating cytokine levels in a mammal comprising administering to the mammal a multimerized that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

10 22. A method for increasing interleukin-10 levels in a mammal comprising administering to the mammal a multimerized antibody that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

15 23. A method for increasing interleukin-4 levels in a mammal comprising administering to the mammal a multimerized antibody that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

20 24. A method for increasing granulocyte macrophage colony stimulating factor levels in a mammal comprising administering to the mammal a multimerized antibody that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

25 25. A method for treating an inappropriate immune response in a mammal comprising administering to the mammal a multimerized antibody that can bind to an extracellular domain of a CD83 gene product that comprises amino acid sequence SEQ ID NO:97.

30 26. The method of claim 25, wherein the inappropriate immune response is diabetes mellitus, arthritis, rheumatoid arthritis, juvenile rheumatoid arthritis,

osteoarthritis, psoriatic arthritis, multiple sclerosis, myasthenia gravis, systemic lupus erythematosus, autoimmune thyroiditis, dermatitis, atopic dermatitis, eczematous dermatitis, psoriasis, Sjogren's Syndrome, keratoconjunctivitis sicca secondary to Sjogren's Syndrome, alopecia areata, allergic responses due to  
5 arthropod bite reactions, Crohn's disease, aphthous ulcer, iritis, conjunctivitis, keratoconjunctivitis, ulcerative colitis, asthma, allergic asthma, cutaneous lupus erythematosus, scleroderma, vaginitis, proctitis, drug eruptions, leprosy reversal reactions, erythema nodosum leprosum, autoimmune uveitis, allergic encephalomyelitis, acute necrotizing hemorrhagic encephalopathy, idiopathic  
10 bilateral progressive sensorineural hearing loss, aplastic anemia, pure red cell anemia, idiopathic thrombocytopenia, polychondritis, Wegener's granulomatosis, chronic active hepatitis, Stevens-Johnson syndrome, idiopathic sprue, lichen planus, Crohn's disease, Graves ophthalmopathy, sarcoidosis, primary biliary cirrhosis, uveitis posterior, or interstitial lung fibrosis.

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27. The method of claim 25, wherein the inappropriate immune response is tissue rejection of a transplanted tissue.

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28. The method of claim 25, wherein the transplanted tissue is skin, cardiac or bone marrow.

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29. The method of claim 13, wherein the multimerized antibody comprises amino acid sequence SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45, SEQ ID NO:46, SEQ ID NO:47, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:53, SEQ ID NO:54, SEQ ID NO:55, SEQ ID NO:56, SEQ ID NO:57, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:67, SEQ ID

NO:69, SEQ ID NO:70, SEQ ID NO:71 SEQ ID NO:72, SEQ ID NO:73, SEQ ID NO:78, SEQ ID NO:79, SEQ ID NO:80, SEQ ID NO:81, SEQ ID NO:86, SEQ ID NO:87, SEQ ID NO:88, SEQ ID NO:89, SEQ ID NO:90; SEQ ID NO:91, SEQ ID NO:92, SEQ ID NO:93, SEQ ID NO: 94, SEQ ID NO:95, SEQ ID NO:96, SEQ ID 5 NO:98 or SEQ ID NO:99.

30. The method of claim 13, wherein the multimerized antibody is non-covalently multimerized.

10 31. The method of claim 13, wherein the multimerized antibody is covalently multimerized.

32. The method of claim 13, wherein lymphocyte proliferation is modulated at a localized site in the mammal.

15 33. The method of claim 32, wherein the localized site in the mammal is a joint, a site in a lung, a site in a muscle, a site in a stomach, a site in an intestine, a site in a thyroid, a site on the skin, a site in a bladder, a site in a vagina, brain or prostate.

20 34. The method of claim 22, wherein the interleukin-10 levels are modulated to treat neoplastic disease.

35. The method of claim 22, wherein the interleukin-10 levels are modulated to treat a tumor.

25 36. The method of claim 13, 15, 17, 20, 21, 22, 23, 24 or 25 wherein the mammal is a human.